PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application Of	
Robert A. Hoult, *et al.*	Examiner: Christine Sung
Serial No.: 09/942,131	Group Art Unit: 2884
Filed: August 29, 2001	Confirmation No. 6577
For: Small Detector Array For Infrared Imaging Miroscope	

Appeal Brief Under 37 C.F.R. §41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Having filed herewith a Notice of Appeal from the rejection of Claims 1, 3-13 and 25-44, the rejection being mailed on February 10, 2006, Appellant submits its Appeal Brief for the above-captioned application pursuant to 37 C.F.R. §41.37 in triplicate as follows.

Certificate of Mailing: I hereby certify that this correspondence is today being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Mail Stop Appeal Brief – Patents; Commissioner for Patents; P.O. Box 1450; Alexandria, VA 22313-1450.

May 4, 2006

Corey L. Malachi
Corey L. Malachi

(I) Real Party in Interest

The real party in interest is PerkinElmer International C.V.

(II) Related Appeals and Interferences

There are no related appeals, interferences or judicial proceedings known to Appellant, the Appellant's legal representative, or Assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(III) Status Of Claims

Claims 1, 3-13 and 25-44 are currently pending. Claims 1, 3-13 and 25-44 stand rejected and are the subject of the instant Appeal.

(IV) Status Of Amendments

A Request for Continued Examination including a Response to an Official Action dated October 4, 2005 to which Appellant responded by amending Claims 1, 25, 40 and 44 was mailed on January 13, 2006. The Request for Continued Examination was granted, the amendments were entered and another Official Action dated February 10, 2006 was issued. Currently, there are no pending amendments to the Claims.

(V) Summary Of Claimed Subject Matter

Claim 1

Claim 1 is directed toward an IR microscope. (p. 1, lines 2-3, p. 8, lines 11-12, Figure 1.) The microscope includes a sample stage. (p. 1, lines 12-13, p. 2, lines 5-6, p. 4, line 3, p. 8, line 14, Figure 1.) The microscope also includes optical components for guiding analyzing radiation so that it is incident on a sample to be analyzed which is carried on said stage. (p. 1, lines 5-6, 14-18, p. 4, line 3-4, p. 8,

lines 14-15, Figures 1-3.) The optical components also guide the radiation from the sample to a detector. (p. 1, lines 14-15, p. 4, line 5, p. 8, lines 19-20, Figure 1.) The detector includes an array of individual detector elements. (p. 2, lines 10-12, p. 4, line 6, p. 18, lines 1-5, Figure 4.) The outputs of the detector elements are directly fed in parallel to processing circuitry for image processing of the detector element outputs. (p. 4, lines 7-8, p. 18, line 21, p. 19, lines 1-2, p. 20, lines 1-2.) Each detector element has its own associated detection circuitry. (p. 5, line 1, p. 19, lines 4-5.) The array of detectors comprises from approximately 3 to 100 individual detector elements. (p. 4, lines 19-20, p. 21, lines 5-7.)

Claim 25

Claim 25 is directed toward a detector assembly for an infrared microscope. (p. 1, lines 2-3, p. 8, lines 11-12, Figure 1.) The microscope comprises an array of from approximately 3 to 100 individual detector elements. (p. 4, lines 19-20, p. 21, lines 5-7.) The outputs of the detector elements are directly fed in parallel to image processing circuitry. (p. 4, lines 7-8, p. 18, line 21, p. 19, lines 1-2, p. 20, lines 1-2.) Each detector element has its own associated detection circuitry. (p. 5, line 1, p. 19, lines 4-5.)

Claim 40

Claim 40 is directed toward an IR microscope. (p. 1, lines 2-3, p. 8, lines 11-12, Figure 1.) The microscope comprises a sample stage. (p. 1, lines 12-13, p. 2, lines 5-6, p. 4, line 3, p. 8, line 14, Figure 1.) The microscope also includes optical components for guiding analyzing radiation so that it is incident on a sample to be analyzed which is carried on said sample stage. (p. 1, lines 5-6, 14-18, p. 4, line 3-4, p. 8, lines 14-15, Figures 1-3.) The optical components also guide radiation from the sample to a detector. (p. 1, lines 14-15, p. 4, line 5, p. 8, lines 19-20, Figure 1.) The detector has a plurality of individual detector elements, each corresponding to a pixel. (p. 2, lines 10-12, p. 4, line 6, p. 18, lines 1-5 and 8-9, Figure 4.) The detector elements are disposed in spaced relationship, the centre

to centre spacing of adjacent elements being substantially equal to or a multiple of the pixel pitch. (p. 19, lines 17-20, p. 27, lines 9-12.) The outputs of the detector elements are directly fed in parallel to image processing circuitry for processing the detector element outputs. (p. 4, lines 7-8, p. 18, line 21, p. 19, lines 1-2, p. 20, lines 1-2.) Each detector element has its own associated detection circuitry. (p. 5, line 1, p. 19, lines 4-5.) The array of detectors comprises from approximately 3 to 100 individual detector elements. (p. 4, lines 19-20, p. 21, lines 5-7.)

Claim 44

Claim 44 is directed toward an IR microscope. (p. 1, lines 2-3, p. 8, lines 11-12, Figure 1.) The microscope comprises a sample stage. (p. 1, lines 12-13, p. 2, lines 5-6, p. 4, line 3, p. 8, line 14, Figure 1.) The microscope also includes optical components for guiding analyzing radiation so that it is incident on a sample to be analyzed which is carried on said stage. (p. 1, lines 5-6, 14-18, p. 4, line 3-4, p. 8, lines 14-15, Figures 1-3.) The optical components also guide radiation from the sample to a detector. (p. 1, lines 14-15, p. 4, line 5, p. 8, lines 19-20, Figure 1.) The detector comprises an array of from approximately 3 to 100 individual detector elements. (p. 4, lines 19-20, p. 21, lines 5-7.) The outputs of the detector elements are directly fed in parallel to image processing circuitry for processing of the detector element outputs. (p. 4, lines 7-8, p. 18, line 21, p. 19, lines 1-2, p. 20, lines 1-2.) The microscope also includes an assembly movable between an operative and an inoperative position by rotation about an axis in order to change the magnification provided by the optical elements of the microscope. (p. 10, lines 1-5 and 10-17, p. 11, lines 12-21, Figure 2).

(VI) Grounds Of Rejection To Be Reviewed On Appeal

(1) Claims 1 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. US 6,274,871 (hereinafter "Dukor") in view of U.S. Patent No. 6,396,048 (hereinafter "Schanz").

(A) Whether the Examiner's rejection under 35 U.S.C. § 103(a) is proper despite the fact that neither Dukor nor Schanz teach, disclose or suggest a array of detectors comprising from approximately 3 to 100 individual detector elements as required by Claims 1 and 25.

(B) Whether the Examiner's rejection under 35 U.S.C. § 103(a) is proper despite the fact that there is no motivation to combine Dukor with Schanz.

(2) Claims 40 and 44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dukor in view of Schanz and further in view of U.S. Patent No. US 5,512,749 (hereinafter "Iddan").

(A) Whether the Examiner's rejection under 35 U.S.C. § 103(a) is proper despite the fact that neither Dukor, Schanz nor Iddan teach, disclose or suggest a detector comprising an array of from approximately 3 to 100 individual detector elements as required by Claims 40 and 44.

(B) Whether the Examiner's rejection under 35 U.S.C. § 103(a) is proper despite the fact that neither Dukor, Schanz nor Iddan teach, disclose or suggest that the outputs of the detector elements are directly fed in parallel or that the outputs of the detector elements have their own detection circuitry as required by Claims 40 and 44.

(VII) Argument

(1) Rejection of Claims 1 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Dukor in view of Schanz

(A) Neither Dukor nor Schanz teach, disclose or suggest a detector comprising an array of from approximately 3 to 100 individual detector elements

Claim 1 recites among other limitations "said array of detectors comprising

from approximately 3 to 100 individual detector elements." Claim 25 recites among other limitations "an array of from approximately 3 to 100 individual detector elements." Appellant respectfully submits that neither Dukor nor Schanz teach, disclose or suggest these limitations.

The Examiner has submitted that Dukor "discloses an array of pizels or detection elements, and describes an example of a 64 x 64 array. However, Dukor does not limit the size of detection array, and further states that such a variable is dependent upon the desired detection resolution." (Official Action 2/10/06, p. 2.) Accordingly, the Examiner admits that Dukor does not disclose an array of detectors comprising from approximately 3 to 100 individual detector elements, but that such a range is obvious. Applicant respectfully disagrees.

While the Examiner has submitted that 3 to 100 individual detector elements is an obvious variation to the 4096 taught in Dukor, Appellant submits that Dukor actually teaches away from this suggestion. For example, Dukor states that with 4096 detectors a "significant advantage of this technique as compared to more conventional infrared microspectroscopy is the parallel infrared detection of a <u>relatively large number of pixels</u>, which eliminates the need of point-by-point mapping of the sample. This parallel detection significantly reduces the time required to collect infrared spectra of a given sample." Therefore, Dukor teaches that more is better. To now say that reduction of the detector elements is obvious cannot be supported by the teachings of Dukor. It is well settled that if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP 2143.01; *In re Gordon*, 733 F.2d 900, 221 USPQ2d 1125 (Fed. Cir. 1984). In the present case, Appellant respectfully submits that reduction of the number of detection elements as suggested would require "point-by-point mapping of the sample" thereby eliminating the "significant advantage" taught by Dukor.

Appellant therefore respectfully submits that Dukor cannot be relied upon to teach said array of detectors comprising from approximately 3 to 100 individual detector elements as required by Claims 1 and 25 and that the only motivation for such a modification is the presently pending claims, which is improper. *In re Oetiker*, 977 F.2d, 1443, 1447 (Fed. Cir. 1992). *See also In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991) (suggestion to combine or modify must be found in the prior art, not the applicant's disclosure). In addition, the use of hindsight knowledge to support an obviousness rejection under 35 U.S.C. § 103 is impermissible. *See e.g., W. L. Gore and Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13, (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). In the present case, Applicant respectfully submits that, while some hindsight is necessary in formulating a rejection under 35 U.S.C. § 103, where the references provide no motivation for the combination and modification, it is improper for the Examiner to use the pending claims as a roadmap to combine and modify references, especially when the references themselves teach away from a suggested modification.

There are significant problems with the system taught in Dukor that are avoided by the present invention. For example, Dukor teaches that "the focal-plane array detector 62 uses a mercury-cadmium-telluride (MCT) infrared detector chip with 64 x 64 pixels." (Col. 4, lines 43-45). Accordingly, this array comprises approximately 4096 detectors, not from approximately 3 to 100 as required by Claims 1 and 25. This is exactly the type of arrangement the present invention originally identified as unacceptable stating "[i]n order to reduce measurement times microscopes have been designed which incorporate large detector arrays rather than single detector elements. One such arrangement uses an integrated array of 64 x 64 liquid nitrogen cooled photovoltaic MCT detectors each having an area of 60 microns square . . . such arrangements however are extremely expensive and typically cost more than 3 times that of a

microscope with employs a single detector." (p. 2, line 19 - p. 3, line 7.) The specification further goes on to identify additional problems with this type of system stating "[a]lthough such large arrays offer the advantage of speed of measurement through the acquisition of many pixels in parallel, currently available devices suffer from a loss of signal/noise ration when compared with the projected performance based on a single array element. The loss arises from inefficiencies incurred in the multiplexing needed to handle the signals from such a large number of elements. In addition, the photovoltaic technology used in these arrays results in a reduced wavelength range when compared with the photoconductive devices used as single element detectors." (p. 3, lines 11-18.) The relatively large array in Dukor suffers from these problems.

The present application has addressed the issue of increasing the scanning speed in a very different way from Dukor, which substantially avoids the problems identified above. For example, Claim 1 recites "said detector comprises an array of individual detector elements, the outputs of the detector elements being directly fed in parallel to processing circuitry for image processing of the detector element outputs, each detector element having its own associated detection circuitry." Claim 25 recites "an array of from approximately 3 to 100 individual detector elements the outputs of which are directly fed in parallel to image processing circuitry, each detector element having its own associated detection circuitry."

Appellant therefore submits that it cannot be obvious to discard a primary teaching of Dukor in view of the presently pending claims as Dukor teaches away from the suggested modification.

Appellant further notes that the Examiner has not cited Schanz as teaching, disclosing or suggesting an array of detectors comprising from approximately 3 to 100 individual detector elements as required by Claims 1 and 25. Accordingly, because neither Dukor nor Schanz teach, disclose or suggest

an array of detectors comprising from approximately 3 to 100 individual detector elements as required by Claims 1 and 25, but in fact teach away from such a modification, no combination of these references can render Claims 1 and 25 obvious.

(B) There is no motivation to combine Dukor with Schanz

The Examiner has stated that it "would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the parallel processor as disclosed in Schanz with the invention disclosed by Dukor as parallel image processing would increase the speed at which the data is processed." (Official Action 2/10/06, p. 3.) Appellant respectfully disagrees.

It is well settled that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *See, e.g.,* MPEP 2143.01 ("The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination."); *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990) (fact that prior art "may be capable of being modified to run the way the apparatus is claimed, there must be some suggestion or motivation in the reference to do so."). In the present case, Applicant respectfully submits that it cannot be obvious to modify Dukor, which teaches use of 4096 detectors, to provide the 4000+ detectors as single element detectors, with each detector element directly fed in parallel to its own associated detection circuitry. The shear cost, size and complexity of the device would make the resulting device unwieldy and unusable.

In addition, Appellant respectfully submits that Dukor and Schanz are from very different fields of endeavor and one of skill in the art would not look to Schanz to modify the device in Dukor. For example, while the detection circuitry of Schanz is directed toward use with photodiodes, transistors, photogates

(detection of visible light); Dukor teaches that mercury-cadmium-telluride (MCT) infrared detector chips are used for the detection elements (detection of infrared light). (Dukor, Col. 1, lines 19 – 21; Schanz, Col. 4, lines 43 – 45). Nowhere does either reference suggest that the output of the detection elements in Dukor would be compatible with the detection circuitry of Schanz. Neither reference indicates that the two technologies are in fact related or interchangeable. As a result, one skilled in the art would not be motivated to apply the teaching of Schanz for visible light imaging to the IR detector in Dukor.

(2) Rejection of Claims 40 and 44 under 35 U.S.C. § 103(a) as being unpatentable over Dukor in view of Schanz and Iddan

(A) Neither Dukor, Schanz nor Iddan teach, disclose or suggest a detector comprising an array of from approximately 3 to 100 individual detector elements

Claim 40 recites among other limitations "said array of detectors comprising from approximately 3 to 100 individual detector elements" and Claim 44 recites "said detector comprising an array of from approximately 3 to 100 individual detector elements." Appellant respectfully submits that the same arguments apply to Claims 40 and 44 as are presented in connection with Claims 1 and 15, namely, neither Dukor nor Schanz teach, disclose or suggest this limitation, and Dukor in fact, teaches away from this limitation.

Appellant notes that the Examiner has not cited Iddan as teaching or suggesting an array of detectors comprising from approximately 3 to 100 individual detector elements as required by Claims 40 and 44.

Accordingly, Appellant respectfully submits that because neither Dukor, Schanz nor Iddan, teach or suggest an array of detectors comprising from approximately 3 to 100 individual detector elements as required by Claims 40 and 44, no combination thereof can render Claims 40 or 44 obvious. Applicant

further respectfully submits that because Dukor teaches away from modification according to pending Claims 40 and 44, any modification of the references according to the pending claims cannot be obvious.

Appellant further respectfully submits that references must be viewed as a whole and that it is inappropriate for the Examiner to pick and choose specific portions out of a reference while ignoring the teachings of the reference. For example, Iddan teaches that "IR detector 20 comprises a two dimensional (2D) array 46 of, but not limited to, 128x128 or 256x256 IR sensitive elements 48 for producing electric signals having intensities proportional to the IR energy impinging thereon." (Col. 4, lines 17-21.) Again, this is a very large number of detectors, 16,384 and 65,536 respectively. This is far greater than the approximately 3 to 100 as claimed.

Therefore, while the Examiner has stated that modification is obvious in view of the cited art, Appellant respectfully submits that the cited art suggests the exact opposite. Again, it is well settled that the use of hindsight knowledge to support an obviousness rejection under 35 U.S.C. § 103 is impermissible. *See e.g., W. L. Gore and Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13, (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). In the present case, Applicant respectfully submits that there is nothing in the cited art that supports the Examiner's reading that the cited art teaches a range of 3 to 100 individual detectors is obvious. Rather, the cited art teaches that very large detector arrays are preferable. In addition, "[t]here must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the applicant's invention itself." *In re Oetiker*, 977 F.2d, 1443, 1447 (Fed. Cir. 1992). *See also In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991) Appellant submits that no motivation can be found in the cited art.

(B) Neither Dukor, Schanz nor Iddan teach, disclose or suggest that the outputs of the detector elements are directly fed in parallel or that the outputs of the detector elements have their own detection circuitry

Claim 40 recites "the outputs of the detector elements being directly fed in parallel to image processing circuitry for processing the detector element outputs, each detector element having its own associated detection circuitry." Claim 44 recites "the outputs of the detector elements being directly fed in parallel to image processing circuitry for processing of the detector element outputs." Again, the cited references teach away from these limitations.

For example, while the Examiner has pointed to Schanz as teaching these limitations, Appellant submits that the references must be viewed as a whole and that it is inappropriate to pick and choose particular features of reference without taking this into account. Iddan specifically teaches away from these limitations. Iddan teaches that "[p]rocessing means 22 includes a processor 50 underlying IR detector 20 for multiplexing and amplifying the signals from IR sensitive elements 48 before their transmission." (Col. 4, lines 25-27.) This is directly contrary to the limitations of the detector elements being directly fed in parallel to image processing circuitry.

In fact, Iddan suffers from the problems identified in the background section of the specification where it stated "[a]lthough such large arrays offer the advantage of speed of measurement through the acquisition of many pixels in parallel, currently available devices suffer from a loss of signal/noise ration when compared with the projected performance based on a single array element. The loss arises from inefficiencies incurred in the multiplexing needed to handle the signals from such a large number of elements." (p. 3, lines 11-17) (emphasis added.) This is exactly the type of system taught in Iddan, whereas the specification of the present application states that "the present invention

proposes using in an infrared imaging microscope a relatively small detector array whose outputs are sufficiently small in number that they can be processed without the need for complex multiplexing or perhaps any multiplexing at all." (p. 4, lines 9-12.) Considering that Iddan teaches that the detector number from approximately 16,000 to 65,000 it becomes clear why multiplexing is required. Providing direct parallel feeds to dedicated detection circuits for this many detectors is simply not feasible or cost effective and is doubtful that such an unwieldy system could even function.

Accordingly, Appellant respectfully submits that because Iddan teaches that the outputs of the detectors are multiplexed it cannot be obvious to combine and modify the cited art as the examiner has suggested to formulate a rejection of the pending claims. In fact, Appellant submits that because Iddan actually teaches away from the suggested modification, Claims 40 and 44 cannot be obvious.

Conclusion

For the foregoing reasons, Applicant respectfully submits that the claimed invention embodied in each of Claims 1, 3-13 and 25-44 is patentable over the cited prior art. As such, Applicant respectfully requests that the rejections of each of Claims 1, 3-13 and 25-44 be reversed and the Examiner be directed to issue a Notice of Allowance allowing each of Claims 1, 3-13 and 25-44.

Respectfully submitted,

May 4, 2006

Wesley W. Whitmyer, Jr., Reg. No. 33,558
Steven B. Simonis, Reg. No. 54,449
ST. ONGE STEWARD JOHNSTON & REENS
986 Bedford Street
Stamford, Connecticut 06905
(203) 324-6155

Attorneys for Appellant

(VIII) Claims Appendix

1. (previously presented) An IR microscope comprising a sample stage, optical components for guiding analyzing radiation so that it is incident on a sample to be analyzed which is carried on said stage, and for guiding radiation from the sample to a detector,

said detector comprises an array of individual detector elements, the outputs of the detector elements being directly fed in parallel to processing circuitry for image processing of the detector element outputs, each detector element having its own associated detection circuitry;

said array of detectors comprising from approximately 3 to 100 individual detector elements.

2. (cancelled)

3. (previously presented) A microscope according to claim 1, wherein the detector elements are arranged in a linear array.

4. (original) A microscope according to claim 3, wherein the detecting elements of the linear array are spaced apart.

5. (previously presented) A microscope according to claim 1, wherein the detector elements are arranged in a plurality of rows.

6. (original) A microscope according to claim 5, wherein the detector elements in each row are spaced apart and said rows are spaced apart.

7. (previously presented) A microscope according to claim 5, wherein the detector elements in each row are offset relative to those in a next adjacent row.

8. (previously presented) A microscope according to claim 1, wherein the center of each element is located at a position corresponding to a point on a regular grid.

9. (original) A microscope according to claim 8, wherein the grid pattern is square or rectangular.

10. (previously presented) A microscope according to claim 8, wherein the spacing between the centers of elements in each row corresponds to a multiple of the spacing of the points on the grid.

11. (previously presented) A microscope according to claim 1, wherein the offset in detector element position in adjacent rows corresponds to the spacing of the grid or a multiple of that spacing.

12. (previously presented) A microscope according to claim 8, wherein the dimensions of each detector element are substantially equal to the spacing of the points on the grid.

13. (previously presented) A microscope according to claim 1, including, in addition to said detector array, a single detector element, said processing means being arranged to process output signals received from either said array or said single detector element.

14. – 24. (cancelled)

25. (previously presented) A detector assembly for an infrared microscope comprising an array of from approximately 3 to 100 individual detector elements the outputs of which are directly fed in parallel to image processing circuitry, each detector element having its own associated detection circuitry.

26. (original) A detector array according to claim 25, where the detector elements are located in a Dewar type vessel.

27. (previously presented) A detector assembly according to claim 25, wherein said array comprises a plurality of individual detector elements, each corresponding to a pixel, which are disposed in spaced relationship, the centre to

centre spacing of adjacent elements being substantially equal to or a multiple of the pixel pitch.

28. (previously presented) A microscope according to claim 1 including an assembly which can be moved into or out of the beam of radiation in order to change the magnification provided by the optical elements of the microscope.

29. (previously presented) A microscope according to claim 28, wherein said magnifying assembly is located between an objective mirror of the microscope and its intermediate focus.

30. (previously presented) A microscope according to claim 28, wherein the magnifying assembly includes a reflecting element which in its operative position reflects the beam of radiation away from its normal direction of propagation and a magnifying component or components which can receive the reflected radiation.

31. (original) A microscope according to claim 30, wherein the magnifying assembly includes first and second magnifying components, the first of which receives radiation from the reflecting element and the second of which receives the radiation from the first magnifying component, and a second reflecting element for directing radiation from the second magnifying component along its normal direction of propagation.

32. (original) A microscope according to claim 31, wherein the first and second magnifying components comprise spherical mirrors.

33. (previously presented) A microscope according to claim 31, wherein the first and second reflecting elements are plane mirrors.

34. (previously presented) A microscope according to claim 28, wherein the magnifying assembly is movable between an operative and an inoperative condition by rotation about an axis.

35. (previously presented) A microscope according to claim 30, wherein the assembly is movable between an operative position in which the reflecting element is located in the beam of radiation and an inoperative position in which the radiation can propagate to the detector elements without magnification by the magnifying assembly by rotation about an axis through the first and second components.

36. (previously presented) A microscope according to claim 34, wherein the angle of rotation though which the assembly can be rotated is of the order of 90°.

37. (previously presented) A microscope according to claim 28 including a shield for shielding the detector from unwanted radiation, said shield being switchable between an operative and an inoperative position.

38. (previously presented) A microscope according to claim 37, wherein the shield comprises an element disposed along the propagation path of radiation reflected from the first magnifying component to the second magnifying component, said element having therein an aperture and acting as a cold shield to prevent at least some of the radiation from arriving at the detector.

39. (previously presented) A microscope according to claim 38, wherein said element comprises a plane mirror which allows through the aperture a beam of rays to be detected but substantially blocks rays outside that beam.

40. (previously presented) An IR microscope comprising:

a sample stage,

optical components for guiding analyzing radiation so that it is incident on a sample to be analyzed which is carried on said sample stage, and for guiding radiation from the sample to a detector, and

said detector having a plurality of individual detector elements, each corresponding to a pixel, which are disposed in spaced relationship, the centre to centre spacing of adjacent elements being substantially equal to or a multiple of the pixel pitch, the outputs of the detector elements being directly fed in parallel

to image processing circuitry for processing the detector element outputs, each detector element having its own associated detection circuitry;

said array of detectors comprising from approximately 3 to 100 individual detector elements.

41. (previously presented) The IR microscope according to claim 1 wherein said detector comprises a photoconductive element.

42. (previously presented) A microscope according to claim 26 including a shield for shielding at least one of the detector elements from unwanted radiation, said shield being switchable between an operative and an inoperative position.

43. (previously presented) The microscope according to claim 42 wherein said shield is located external to the Dewar type vessel.

44. (previously presented) An IR microscope comprising a sample stage, optical components for guiding analyzing radiation so that it is incident on a sample to be analyzed which is carried on said stage, and for guiding radiation from the sample to a detector,

said detector comprising an array of from approximately 3 to 100 individual detector elements, the outputs of the detector elements being directly

fed in parallel to image processing circuitry for processing of the detector element outputs;

an assembly movable between an operative and an inoperative position by rotation about an axis in order to change the magnification provided by the optical elements of the microscope.

(IX) Evidence Appendix

There is no evidence submitted under 37 CFR 1.130, 1.131 or 1.132 or any other evidence entered by the examiner and relied upon by the appellant in the appeal.

(X) Related Proceedings Appendix

There are no decisions or pending related appeals and interferences per 37 CFR 41.37 (c)(1)(x).